IMAGE SEGMENTATION SYSTEM AND METHOD

ABSTRACT OF THE DISCLOSURE

The present invention relates in general to systems used to process images. In particular, the present invention is an image segmentation system and method used to isolate the segmented image of a target person, animal, or object from an ambient image which includes the target person, animal, or object, in addition to the area surrounding the target. The invention supports the ability of an airbag deployment system to distinguish between different types of occupants by providing such deployment systems with a segmented image of the occupant. The invention is particularly useful at night or in other environments involving inadequate light or undesirable shadows. The invention can use histograms and cumulative distribution functions to perform image thresholding. Morphological erosion and dilation can be used to eliminate optical "noise" from the image. Gap filling is performed on the basis of the "momentum" and "gravity" of regions of similar pixel values. An upper ellipse can generated to represent the upper torso of the occupant. The invention is highly flexible, and can be modified in accordance with the desired use.